



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,580	08/18/2003	Andrew B. Hastings	1376.721US1	3953

21186 7590 08/24/2006

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER

THOMAS, SHANE M

ART UNIT PAPER NUMBER

2186

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,580

Applicant(s)

HASTINGS, ANDREW B.

Examiner

Shane M. Thomas

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-8, 12-17 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-6, 8, 12-15, 17, 21-24 and 26 is/are allowed.
- 6) ☒ Claim(s) 7, 16 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2006 and 13 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/9/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is responsive to the amendment filed 6/9/2006. Claims 3-8,12-17, and 21-26 are currently pending as claims 1,2,9-11,18-20 and 27, have been canceled.

Upon a supplemental search of the prior art, the prior art reference of Kuehnel (U.S. Patent Application Publication No. 2003/0037060) was discovered and applies to claims 7,16, and 25, whose scopes were originally stated as being allowable over the prior art of record in the Non-final Office action filed 1/9/2006. As the Kuehnel reference is being applied to reject the claims, this Office action has been made NON-FINAL in order to allow the Applicant to review the Kuehnel reference and the rejections made therewith.

All previously outstanding objections and rejections to the Applicant's disclosure and claims not contained in this Action have been respectfully withdrawn by the Examiner hereto.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 7, 16, and 25, are rejected under 35 U.S.C. 102(e) as being anticipated by Kuehnel (U.S. Patent Application Publication No. 2003/0037060).

As per claims 7, 16, 25, Kuehnel teaches **identifying two or more contiguous pages in virtual memory 230** (I/O object request can be 64 or more [consecutive] pages -¶35 - it is well known in the art that I/O requests use logical [i.e. virtual] addressing to perform requests - known as logical block addressing [LBA]) **to be mapped to physical memory 220** (figure 2); **determining a size in pages of the two or more consecutive pages of virtual memory (¶35); determining an alignment in pages of the two or more contiguous pages of virtual memory** (Kuehnel teaches in ¶58 that the optimal size for I/O writes is 64 pages, thus it follows that for all smaller I/O [virtual] address the system of Kuehnel must determine an alignment for each of the I/O write requests in order to compile a page swap of 64 pages); **searching a free bit data structure** (figure 4) **to locate a free section of contiguous having the desired size and alignment (¶¶36-37); mapping the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping (¶37 - where if any of the objects 340 are in use in a given cluster 350 of contiguous physical memory then a single bit is set to indicate the cluster is in use); wherein searching a free bit data structure comprises**

Art Unit: 2186

searching for a number of consecutive free bits (second directory ¶36 data structure contains a list of the consecutive number of free bits of the first directory ¶34 that contains a free bit indicator for each page of physical memory) **matching the determined size in pages of the two or more contiguous virtual memory pages to be mapped** (i.e. the I/O request that can comprise multiple pages - ¶35).

Allowable Subject Matter

Claims 3-6,8,12-15,17, 21-24, and 26, are allowable over the prior art of record. The prior art of record does not teach or suggest, either alone or in combination, all of the limitations of independent claims 3,5,12,14,21, and 23. Claims 3,6,13,15,22, and 24, are allowable as being dependent upon an allowable base claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached M-F 8:30 - 5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached at (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2186

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shane M. Thomas



MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100